WHAT IS CLAIMED IS:

1.   A node information management system including a plurality of nodes each of which is connected through a network so that they can communicate with each other and a node information collecting apparatus connected to each of said nodes so that it can communicate therewith in order to collect predetermined information regarding each of said plurality of nodes,

        wherein each of said nodes comprises:

        a node information memory unit which stores the predetermined information regarding the node itself which was formed by the node itself every formation of said predetermined information;

        a node information transmitting unit which supplies said predetermined information stored in said node information memory unit of the node itself to another node connected adjacently to the node itself through said network; and

        a backup node information memory unit which stores said predetermined information supplied from said node information transmitting unit of said another node as backup information.

2.   A system according to claim 1, wherein said node information collecting apparatus collects said predetermined information stored in said node information memory unit of each of said nodes from each of said nodes, and with respect to said node from which said predetermined information cannot be collected, said node information collecting apparatus collects said predetermined information stored in said backup node information memory unit of said another node adjacent to said node.

3.   A system according to claim 1, wherein said node information transmitting unit of each of said nodes supplies said predetermined information regarding another node stored in said backup node information memory unit of the node itself to other nodes excluding said another node so as to be stored into said backup node information memory units of said other nodes.

4.   A system according to claim 3, wherein said node information collecting apparatus collects said predetermined information stored in said node information memory unit of each of said nodes from each of said nodes, and with respect to said node from which said predetermined information cannot be collected, said node information collecting apparatus collects said predetermined information stored in said backup node information memory unit of said another node except for said node.

5.   A system according to claim 1, wherein said node information collecting apparatus collects said predetermined information stored in said node information memory unit of each of said nodes and said predetermined information stored in said backup node information memory unit from each of said nodes.

6.   A system according to claim 1, wherein when there is a loss in said predetermined information stored in said node information memory unit of each of said nodes, said node information collecting apparatus compensates the information with the loss of said node with said predetermined information stored in said backup node information memory unit of another node, thereby forming said node information of each of said nodes.

41

7.   A system according to claim 1, wherein said node information management system is a node information collection system.

8.   A system according to claim 1, wherein said node information memory unit and said backup node information memory unit provided for each of said nodes are constructed by a single memory device.

9.   A system according to claim 1, wherein each of said nodes further has a node information forming unit which forms said predetermined information regarding the node itself.

10.   A system according to claim 1, wherein said node information collecting apparatus has a node information collecting unit which collects said predetermined information stored in said node information memory unit of each of said nodes and said predetermined information stored in said backup node information memory unit.

11.   A system according to claim 1, wherein said node information collecting apparatus periodically collects said information from each of said nodes on the basis of a polling signal from said apparatus by a polling method by which said apparatus communicates with each of said nodes at a predetermined period.

12.   A system according to claim 1, wherein said node information collecting apparatus periodically collects said information by an active program method by which a predetermined packet signal which is periodically

transmitted from said apparatus to said network, that is, a predetermined packet signal which circulates through each of said nodes in said network is received.

13.   A system according to claim 1, wherein said predetermined information regarding each of said nodes includes communication quality information of said node, node setting information, and information regarding the user.

14.   A system according to claim 13, wherein

said communication quality information has: packet delay information showing a mean time which is required for each packet process in said node in every predetermined unit time; packet loss information showing the number of lost packets in said node in every predetermined unit time; and traffic information showing a packet inflow amount to said node in every predetermined unit time,

said node setting information has: routing information showing a transfer route of the packet to be transferred; and transfer information showing a transfer method of the packet, and

said user information has: connecting time information in which a time during which the user who communicates through each of said nodes is connected to said node for the purpose of communication is shown every said user; and charge information showing a communication fee which is charged for every said user.

15.   A node as one of a plurality of nodes each of which is connected through a network so that they can communicate with each other and in which

43

predetermined information regarding said node is collected by a node information collecting apparatus connected to said node so that it can communicate therewith, comprising:

a node information memory unit which stores said predetermined information regarding said node itself which was formed by said node itself every formation of said predetermined information;

a node information transmitting unit which supplies said predetermined information stored in said node information memory unit of the node itself to another node connected to the node itself through said network; and

a backup node information memory unit which stores said predetermined information supplied from said node information transmitting unit of said another node as backup information.

16.   A node according to claim 15, further comprising a node information forming unit which forms said predetermined information regarding the node itself.

17.   A node according to claim 15, wherein when said predetermined information which was newly supplied from said node information transmitting unit of said another node cannot be stored into said backup node information memory unit of the node itself, in order to assure an area for storing said information into said backup node information memory unit, said node can delete said predetermined information which has already been transferred through said plurality of other nodes and stored in the backup node information memory unit, that is, said predetermined information which has been transferred via a larger number of nodes than the number of nodes

through which said newly supplied predetermined information has been transferred.